

The embodiments of the invention for which an exclusive privilege and property right are claimed are defined as follows:

1. A method of unclogging clogged bulk material such as grain, feed and other soft bulk items stored in a silo bin and other large storage facilities, the steps comprising:

drilling downwardly a small diameter cavity access hole from a top of the silo bin through the clogged bulk material and into a lower bin cavity, the lower bin cavity disposed below the clogged bulk material; and

drilling upwardly a large diameter raise hole in the clogged bulk material, the large diameter raise hole sufficient in size to allow the clogged bulk material to cave in and around the sides of the large diameter raise hole as the raise hole advances upwardly through the bulk material.

2. The method as described in claim 1 further including a step of digging out the lower bin cavity disposed below the clogged bulk material prior to drilling the small diameter cavity access hole.

3. The method as described in claim 1 wherein the large diameter raise hole is in a range of from 6 to 36 inches in diameter and greater.

4. The method as described in claim 1 wherein the small diameter cavity access hole is in a range of from 2 to 4 inches in diameter.

5. The method as described in claim 1 wherein the depth of the clogged material is in a range of 10 to 120 feet depending on the height of the silo bin.

6. The method as described in claim 1 wherein the drilling of the small diameter cavity access hole includes using a drill bit with at least one foldable drill blade disposed next to the side of the drill bit and the drilling the large diameter raise hole includes using the drill bit with the drill blade unfolded and extending outwardly therefrom.

7. The method as described in claim 1 wherein the drilling of the large diameter raise hole includes using a drill bit with at least one outwardly extending drill blade for cutting into the soft bulk material.

8. A method of unclogging clogged bulk material such as grain, feed and other soft bulk items stored in a silo bin and other large storage facilities, the steps comprising:

opening an access door in a bottom of the silo bin and digging out a lower bin cavity disposed below the clogged bulk material;

using a hydraulic drill and drilling downwardly a small diameter cavity access hole from a top of the silo bin through the clogged bulk material and into the lower bin cavity; and

using the hydraulic drill and drilling upwardly a large diameter raise hole in the clogged bulk material, the large diameter raise hole sufficient in size to allow the clogged bulk material to cave in and around the sides of the large diameter raise hole as the raise hole advances upwardly through the bulk material.

9. The method as described in claim 8 wherein the large diameter raise hole is in a range of from 6 to 36 inches in diameter and greater.

10. The method as described in claim 8 wherein the small diameter cavity access hole is in a range of from 2 to 4 inches in diameter.

11. The method as described in claim 8 wherein the depth of the clogged material is in a range of from 10 to 120 feet depending on the height of the silo bin.

12. The method as described in claim 8 wherein the drilling of the small diameter cavity access hole includes using a pointed drill bit with a pair of foldable drill blades disposed next to the side of the drill bit and the drilling of the large diameter raise hole includes using the pointed drill bit with the drill blades unfolded and extending outwardly therefrom.

13. The method as described in claim 8 wherein the drilling of the large diameter raise hole includes using a drill bit with a pair of outwardly extending drill blades for cutting into the soft bulk material.

14. A silo bin drilling system for unclogging bulk material such as grain, feed and other soft bulk items stored in a silo bin and other bulk storage facilities, the drilling system comprising:

a hydraulic drill;

a plurality of drill pipe threaded together and forming a drill pipe string, a top of an upper drill pipe attached to said hydraulic drill for rotating said drill pipe string;

a drill bit attached to a bottom of a lower drill pipe in said drill pipe string, said drill bit adapted for drilling a small diameter cavity access hole in the clogged bulk material when said drill pipe string is rotated by said hydraulic drill; and

at least one cutting blade attached to said drill bit and extending outwardly therefrom, said cutting blade adapted for drilling a large diameter raise hole when said hydraulic drill is used for raising said drill pipe string.

15. The drilling system as described in claim 14 wherein said hydraulic drill includes a pipe string motor attached to the top of the upper drill pipe for rotating said drill pipe string.

16. The drilling system as described in claim 15 wherein said hydraulic drill includes a drive screw motor used for raising and lowering said pipe string motor and said drill pipe string.

17. The drilling system as described in claim 15 wherein said hydraulic drill includes a pipe clamp disposed next to said pipe string motor for engaging a lower drill pipe when removing or adding an upper drill pipe to said drill pipe string.

18. The drilling system as described in claim 15 wherein said hydraulic drill includes a pair of all-thread drive screws attached to said drive screw motor and a drive head, said drive head attached to said pipe string motor, said drive screws used for raising and lowering said drill pipe string.

19. The drilling system as described in claim 14 further including a pair of foldable cutting blades attached to sides of said drill bit, said foldable cutting blades folded next to the sides of said drill bit when drilling the small diameter access hole, said pair of foldable cutting blades unfolded by centrifugal force and extending outwardly from said drill bit when drilling the large diameter raise hole.

20. The drilling system as described in claim 14 further including a pair of cutting blades attached to the sides of said drill bit, said cutting blades extending outwardly from said drill bit when drilling the large diameter raise hole.